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(54) **ANTI-FUNGAL POLYPEPTIDES**

(57) The present invention relates to a polypeptide comprising a CDR1 region having an amino acid selected from the group consisting of SEQ ID NOs: 52 to 67 and 112 to 122, a CDR2 region having an amino acid sequence selected from the group consisting of SEQ ID NOs: 68 to 83 and 123 to 133, and a CDR3 region, optionally wherein the CDR3 region has a sequence selected from the group consisting of SEQ ID NOs: 84 to 100 and 134 to 144, and which polypeptide is capable of binding to a fungus. The invention further relates to a polypeptide comprising the amino acid sequence set out in any one of SEQ ID NOs: 1 to 51 or 101 to 111, or an amino acid sequence having at least about 85% sequence identity thereto and which polypeptide is capable of binding to a fungus, wherein the polypeptide optionally comprises one or more substitutions resulting in increased positive charge in comparison to any one of SEQ ID NOs: 1 to 51 to 101 to 111. The invention further relates to a composition comprising at least one polypeptide according to the invention. The compositions may be used as anti-fungal compositions.

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# EUROPEAN SEARCH REPORT

Application Number
EP 24 18 9193

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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 12 December 2024 | Oderwald, Harald |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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~~The present search report has been drawn up for all claims~~

| Place of search | Date of completion of the search | Examiner |
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| The Hague | 12 December 2024 | Oderwald, Harald |

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Application Number
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## CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☒ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

## LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-13, 16(all partially)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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# LACK OF UNITY OF INVENTION
# SHEET B

Application Number
EP 24 18 9193

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13, 16(all partially)

Polypeptides capable of binding to a fungus or to a lipid-containing fraction of the plasma membrane of Botrytis cinerea, thereby causing retardation of growth of a spore of the said fungus and/or lysis of a spore of the fungus wherein the polypeptide comprise the amino acid set out in SEQ ID NO: 1 (10G11Q) or 2 (10G11) comprising a CDR1, CDR2 and CDR3 of SEQ ID NO: 52, 68 and 84, respectively. Compositions comprising said polypeptides. Use of said polypeptides as an anti-fungal agent. Related method for protecting or treating a plant, post-harvest treatment method, method of inhibiting or killing the growth of a plant pathogenic fungus. A nucleic acid encoding said polypeptides.

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2. claims: 1-13, 16(all partially)

Polypeptides capable of binding to a fungus or to a lipid-containing fraction of the plasma membrane of Botrytis cinerea, thereby causing retardation of growth of a spore of the said fungus and/or lysis of a spore of the fungus wherein the polypeptides comprise the amino acid set out in SEQ ID NO: 3 (10E11Q) or 4 (10E11) comprising a CDR1, CDR2 and CDR3 of SEQ ID NO: 53, 69 and 85, respectively. Compositions comprising said polypeptide. Use of said polypeptide as an anti-fungal agent. Related method for protecting or treating a plant, post-harvest treatment method, method of inhibiting or killing the growth of a plant pathogenic fungus. A nucleic acid encoding said polypeptide.

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3. claims: 1-13, 16(all partially)

Polypeptides capable of binding to a fungus or to a lipid-containing fraction of the plasma membrane of Botrytis cinerea, thereby causing retardation of growth of a spore of the said fungus and/or lysis of a spore of the fungus wherein the polypeptide comprises the amino acid set out in SEQ ID NO: 5 (12C03Q) or 6 (12C03) comprising a CDR1, CDR2 and CDR3 of SEQ ID NO: 54, 70 and 86, respectively. Compositions comprising said polypeptides. Use of said polypeptides as an anti-fungal agent. Related method for protecting or treating a plant, post-harvest treatment method, method of inhibiting or killing the growth of a plant pathogenic fungus. A nucleic acid encoding said polypeptides.

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## LACK OF UNITY OF INVENTION
## SHEET B

Application Number
EP 24 18 9193

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

4-14. claims: 1-13, 16(all partially)

same as invention 1, but relating to a "Mutant" in the order given in Table 9, i.e. invention 4 pertains to "Mutant 1" (SEQ ID NO: 7, with CDRs in SEQ ID NOs: 55, 68 and 84), ..., and invention 14 pertains to "Mutant 11" (SEQ ID NO: 17, with CDRs in SEQ ID NOs: 57, 68 and 89).

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15-48. claims: 1-13, 16(all partially)

same as invention 1, but relating to a "Single ALA mutant" in the order given in Table 9, i.e. invention 15 pertains to "Single ALA Mutant 1" (SEQ ID NO: 18, with CDRs in SEQ ID NOs: 58, 68 and 84), ..., and invention 48 pertains to "Single ALA Mutant 34" (SEQ ID NO: 51, with CDRs in SEQ ID NOs: 52, 68 and 100).

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49-59. claims: 1-13, 16(all partially)

same as invention 1, but relating to a "10G11" variant in the order given in Table 9, i.e. invention 49 pertains to "10G11-A" (SEQ ID NO: 101, with CDRs in SEQ ID NOs: 112, 123 and 134), ..., and invention 59 pertains to "10G11-K" (SEQ ID NO: 111, with CDRs in SEQ ID NOs: 122, 133 and 144).

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60. claims: 14, 15

A method for the preparation of a polypeptide which specifically binds to and/or has affinity to a fungus which comprises immunizing an animal with a fungal target. A method for the preparation of an anti-fungal composition.

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# ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 24 18 9193

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